GREEK AND LATIN NOMENCLATURES IN MEDICAL LANGUAGE

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***Abstract**: The medical terminology of European languages (including both English and Romanian) consists in roots and affixes derived from ancient Greek and Latin. The Graeco-Latin core of medical terminology is a result of the historical development of medicine as a science. The paper aims to provide a short inventory of Greek and Latin medical terms developed over the course of the development of medicine.*

***Keywords**: medical terminology, Greek and Latin Terms, history of medicine.*

1. Introduction: The Greek and Latin core of medical terminology

Much of the medical terminology of European languages (including both English and Romanian) consists in roots and affixes derived from ancient Greek and Latin. Their endurance in time and across a large space can be explained by the advantage they provide to medical education, communication and research worldwide by serving as a kind of artificial language that does not change, as both ancient Greek and Latin are dead languages. Thus, the Greek and Latin core of medical terminology serves both as a resource for coining new terms and as an international medium of communication between doctors and researchers in the field of medical sciences.

2. Medical Language and the History of Medicine

The Graeco-Latin core of medical terminology is a result of the historical development of medicine as a science. At first medical practice was linked to religious practices, as disease was explained by the intervention of supernatural powers, such as gods or evil spirits. During Classical and Hellenistic Greece (500-30 B.C) critical reasoning emerged (making conjectures followed by finding and eliminating contradictions in logical thinking), leading to the development of early scientific methods. The bases of modern medicine were set by Hippocrates of Cos (born roughly 460 B.C; date of death uncertain), a Greek philosopher and physician who separated the practice of medicine from religion by arguing that disease had purely natural and physical causes. Greek medicine passed on its tradition to the Roman Empire, from where it spread to the rest of Europe during the Middle Ages and then the Renaissance.

The language of medicine originates in the 4^{th}-5^{th} century B.C. in the Corpus Hippocraticum, a collection of medical works compiled by the disciples and followers of Hippocrates. Both a theoretical and practical work, the Hippocratic Corpus contains the earliest references to scientific practices in medicine: systemic observation, case history and physical examination are laid out as the guiding principles for identifying

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and curing disease. At the same time it is an inventory of medical and surgical treatments. Greek medical terminology was later spread throughout Europe by means of the Hippocratic Corpus, as most doctors from the Roman Empire were of Greek origin. The most famous example is that of Galen of Pergamum (2nd century B.C.) the court physician of several Roman emperors, who took up the Hippocratic theory of humours and laid the foundations of Mediaeval medicine. His writings influenced the development of anatomy, physiology, pathology and pharmacology. This way, a lot of terms of Greek origin were spread across the Roman Empire, some of them still in use today. Examples include: diarrhoea (throughflow), dyspnea (difficult breathing), diabetes (throughflow, siphon), dendrite (resembling a tree), melancholy (pertaining to black bile), catarrh (downflow), paralysis (loosening, from paralyein – to disable), hyoid bone (from Greek hyoeides – shaped like an U).

The beginnings of Latin medical terminology are linked to Aulus Cornelius Celsus' treaty *De Medicina (On Medicine)*-1st century A.D., an overview of medical knowledge based on Greek sources. Because most Greek medical terms had no Latin equivalents, Celsus (nicknamed "Cicero medicorum" – "the Cicero of doctors" on account of his linguistic abilities), proceeded in a twofold manner: first he imported some Greek words directly and secondly he latinized others. Thus the Greek "stomachos" became "stomachus", "eileos" became "ileus" and "oisophagos" became "esophagus". He thus opened the way for the subsequent latinization of many Greek terms which was the main feature of the developing medical vocabulary of the Middle Ages. By far the most interesting example is that of the "duodenum", a short Latinized form of the translation of "dodekadaktylos" (intestinum duodenum digitorum), the name given to this segment of the small intestine by Herophilus (Scarborough, 1992:193) because it was the length of twelve fingers.

In the Middle Ages Latin served as the lingua franca of scholars and educated people and was the teaching medium at all the great European universities. As such it absorbed Greek medical terminology by transliteration or overlay with Latin prefixes and suffixes. The result is that many terms from medical language are either Latinized forms of Greek words or hybrid words that combine Greek and Latin.

2.1.Examples of Latinized Greek Words

- Lobe < lobus (medieval Latin) < lobos (Greek- vegetable pod)
- Hepatic < hepaticus (Med. Latin – pertaining to the liver) < hepatikos (Greek)
- Pylorus< pyloros (Greek- gatekeeper)
- Aorta (Latin) < aorte (Greek – what is hung up)
- Trachea < Latin trachia < Greek- trakheia (windpipe)
- Fungus (Latin – mushroom) < Sphongos (Greek – sponge)
- Parasite < parasitus (medieval Latin) < parasitos (Greek –somebody who eats at another's table)
- Syringe < Latin syringa < Greek syrinx (tube, pipe, also a musical instrument)
- Epilepsy < Latin epilepsis < epilepsis (seizure upon)
- Bacteria < plural of Latin bacterium < Greek bakterion (small staff, rod) – because the first observed bacteria were rod-shaped
- Chyme < Latin chymus < Greek khymos (a liquid, a humour)

2.2 Examples of Greek and Latin hybrids

- Halitosis (bad breath) < lat. Halitus (breath) and Greek suffix -osis (condition, disease)

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- Osteopenia (deficiency of bone tissue) < Greek osteo- (bone) and Latin penia (deficiency)
- Hemoglobin< Greek hem (blood) and Latin globulus (diminutive of globus)
- Hypertension and hypotension < Greek prefixes hyper- and hypo- and the Latin tensionem (stretching)
- Hypoferremia/hyperferremia, hyponatremia/hypernatremia, hypocalcemia/hypercalcemia, (deficiency/excess of iron/sodium/calcium in the blood) < Greek prefixes hypo-/ hyper- and the Latin names of iron (ferrum), sodium (natrium) and calcium (from calx – limestone)
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3. Latin as the source of new medical terminology

The high status of Latin as the lingua franca of the international scientific community until the 19th century (the century of national revolutions and national consciousness) meant that the majority of new discoveries, new instruments and new medical techniques would acquire Latin names. Sometimes the newly coined Latin words retained the vivid imagery that characterized Greek medical terms, coined on the principle of similarity to plants, animals, instruments and everyday objects.

3.1 Examples of coined terms in Latin

- Muscle < from Latin musculus meaning little mouse
- Gland< from Latin glans meaning acorn or nut
- Scalpel < from Latin scalpellum (surgical knife) < from scalpere (to carve)
- Speculum (vaginal speculum) < from Latin speculum (looking glass, mirror)
- Cortex < from Latin cortex (bark of a tree)
- Cell< from Latin cella (room, storeroom)
- Fibula (bone of the lower leg) < from Latin fibula (buckle)
- Radius (bone of the forearm) < from Latin radius (ray)
- Tibia (bone of the lower leg) < from Latin tibia (flute, reed pipe)
- Fossa (a depression in a bone) < from Latin fossa (ditch)
- Sinus<from Latin sinus (curve or fold)
- Bowel (intestine) < from Latin botellus (a diminutive of botulus-sausage)
- Anus< from Latin anus (ring)
- Pelvis< from Latin pelvis (basin)
- Sartorius (a long leg muscle) < from Latin sartorius (belonging to a tailor) – the muscle is used in crossing the legs to bring them into the position needed to sit like a tailor
- Mediastinum < from Latin mediastinus (midway)

4. Greek and Latin in the age of national languages

Even if starting with the 19th century Latin was no longer used as the language of medicine, local languages retained the Greek and Latin terminological core. Thus both Greek and Latin continued to produce new terminology, especially in the areas of anatomy and physiology. The names of hormones were coined from Greek and Latin roots in the 20th century, starting with 1902 when secretin was discovered by the British

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physiologists Bayliss and Starling, who derived the word hormone from a Greek verb meaning "to arouse, to set in motion". However, the new medical techniques used in surgery for diagnostic and treatment purposes (MRI, CT, X-ray, etc.) became the field for generating terms in the national languages, most of them translations from English – now a global medium of communication.

4.1Examples of newly coined term using Greek or Latin affixes and roots

- Mitochondrion – from Greek mitos (thread) and khondrion (small grain)
- Thrombocyte – from Greek thrombos (blood clot) and cyto- (receptacle, combining root for cell). Also phagocyte, erythrocyte, etc.
- Ribosome (coined in 1958 by the Romanian scientist George Emil Palade) – from ribo- (derived from German ribose, a sugar component) and Greek soma (body)
- Oxytocin- from Greek oxy (rapid) and tokos (birth)
- Adrenalin- from Latin adrenal (near the kidneys)< from Latin renes (kidneys)
- Clone –from Greek klon (a twig or spray)

5. Two forms: Latin and Greek

The use of both Greek and Latin in medical terminology has often led to overlapping terms:

- Cerebrum (Latin) and enkephalon (Greek)
- Combining roots ocul/o (Latin) and ophtalm/o (Greek) used for the eyes: oculist, ophtalmologist
- Suffixes -algia (Latin) and -dynia (Greek) for pain: myalgia, gastrodynia
- Prefixes ossi- (Latin) and osteo- (Greek) for bone: ossicle, osteoblast
- Prefixes extra- (Latin) and ecto- (Greek) meaning outside of: extracellular, ectoplasm
- Prefixes bi- (Latin) and diplo- (Greek) meaning double or twofold: bicuspid, diplopia
- Prefixes semi- (Latin) and hemi- (Greek) meaning half: semilunar valve, hemiplegia
- Combining forms veno- (Latin) and phlebo- (Greek) used for vein: venous (pertaining to a vein) and phlebitis (inflammation of a vein)
- Combining forms reno- (Latin) and nephro- (Greek) used for kidneys: renal, nephritis

6. Conclusion

The Graeco-Latin core of medical language is historically linked to the early stages of the development of medicine as a science in Classical Greece and then the Roman Empire. While the Middle Ages retained the classical Greek terminology and the Latinized medical terms of Celsus, starting with Renaissance Latin becomes the lingua franca of the European scientific community. Latin assumes a more productive role, especially in the field of anatomy, as in Europe starting with the 14th century dissections are allowed and anatomical atlases become more complete and accurate. However, in the age of national languages, some of the Greek and Latin words are translated, so new

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synonyms appear. Nowadays, in the age of globalization, when the most influential medical journals are written in English, English has taken on the former role of Latin, and new surgical procedures, interventions and test are coined in English.

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